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RESEARCH AID

PETROLEUM REFINERIES IN THE SOVIET BLOC

ORR Project 25.195

CENTRAL INTELLIGENCE AGENCY

Office of Research and Reports

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FOREWORD

This research aid represents a compilation of 1953 data covering the location and producing capacity of natural petroleum and synthetic oil refineries in the Soviet Bloc. The information shown represents the latest available estimates of capacity and should be useful in evaluating Bloc economic and military potentialities in terms of petroleum product availability.

The data include the major facilities for which current intelligence is available and is adequate and consistent enough for a coordination of Air Force (AFOIN) and CIA estimates. Although this list represents the latest coordinated estimate of refinery capacities in the Soviet Bloc, acquisition and analysis of additional data may require that these estimates be revised.

Estimates of 1953 crude charge capacities are presented for the entire Soviet Bloc. Estimates of 1953 thermal conversion capacities for the Satellites are also presented, but the inadequacy of current information about capacities in the USSR makes it impossible to bring estimates of Soviet thermal capacities beyond 1950. The same limitation applies to estimates of catalytic conversion capacities in the USSR. No facilities for catalytic conversion of natural petroleum are known to exist in the Satellites.

A number of Soviet Bloc petroleum processing installations not discussed in this research aid are reported to have crude charge capacities or specialty product facilities, but available data on them do not permit a correlated estimate of their capacities. Included in this group are the following installations: Gor'kiy, Verkhne-Chusovskiye Gorodki, Dzerzhinsk, Makhachkala, Nebit-Dag, Batraki, Chkalov, Molotov, Tuymazy, Nikolayevsk, and Riga.

The synthetic and shale oil capacities are expressed in terms of the estimated liquid petroleum product output capacity from the charge stock. Residual products such as paraffin, waxes, greases, asphalt, pitch, semi-coke, and the like are not included in the capacity estimates.

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PETROLEUM REFINERIES IN THE SOVIET BLOC

Summary

The total crude charge capacity, listed in Tables 1* and 2,** in 1953 for the natural petroleum refineries in the Soviet Bloc is approximately 64 million metric tons.*** This total is comprised of the following:

<u>Country</u>	<u>Crude Charge Capacity (Thousand Metric Tons)</u>
USSR	51,530
Albania	40
Austria (Soviet Zone)	1,770
Bulgaria	25
Czechoslovakia	475
Hungary	1,090
Poland	550
Rumania	7,675
East Germany	170
China	680
Total	<u>64,005</u>

The estimated total synthetic oil capacity (based on the capacity to produce liquid petroleum products) in 1953 for the facilities in the Soviet Bloc is approximately 3.1 million tons. These facilities include coal hydrogenation and oil shale processing installations. A breakdown of the total figure is as follows:

* Table 1 follows on p. 4.

** Table 2 follows on p. 7.

*** Throughout this research aid, tonnages are given in metric tons.

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<u>Country</u>	<u>Petroleum Product Output Capacity (Thousand Metric Tons)</u>
USSR	580
East Germany	1,630
Czechoslovakia	375
Poland	60
China	455
Total	<u>3,100</u>

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I. Introduction.

The facilities analyzed in the statistical tables which follow comprise the major known installations in the Soviet Bloc. It is possible that one or two significant refineries heretofore unidentified may be in existence in the USSR. This assumption accounts for the excess refining capacity (usually 15 to 20 percent excess over crude charge in a major producing country) required to maintain the necessary reserve for seasonal peaks, emergencies, and the like. Thus, a crude charge capacity of 57 million to 59.5 million tons would be required to refine the estimated 49.6 million tons of crude oil (out of 52.7 million tons of total liquid hydrocarbons) produced in the USSR in 1953. Therefore, the USSR crude charge capacity of 51.5 million tons, as shown in Table 1, does not include a possible 10 to 15 percent in additional crude charge capacity which may be present at unidentified locations. The Fifth Five Year Plan calls for a large expansion of refining facilities in the USSR by 1955, but available information is insufficient to reveal the location or capacity of these possible additional sites.

II. Statistical Analysis.

Tables 1 through 4* provide statistical data on petroleum refineries in the Soviet Bloc.

* Tables 1, 2, 3, and 4 follow on pp. 4, 7, 8, and 14, respectively.

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Table 1
Petroleum Refineries in the USSR

Thousand Metric Tons										
Site	Name	Coordinates		Economic Region	Crude Charge Capacity		Thermal Conversion Capacity-1950	Catalytic Conversion Capacity-1950 ^a /*		
		Latitude	Longitude		1953 ^b /	1950		Cracking	Alkylate	Polymer
Baku		40°23'N	49°53'E	V	15,000	15,000 ^c / ^d /	2,000 ^d /	500 ^e / ^d /		
Groznyy		43°18'N	45°40'E	IV	7,000	7,000 ^f /	2,800 ^f /			
Saratov	Krasnodar	51°27'N	45°57'E	VI	3,700	1,800 ^e /	2,400 ⁱ /			30 ^g / ^f / ^h /
Ufa	Chernikovka	54°50'N	56°06'E	VIII	3,200	1,500 ^e /	755 ^e /			30 ^g / ^h / ⁱ /
Tuapse		44°06'N	39°06'E	IV	2,600	2,000 ^e / ^j /	600 ^e /			
Batumi	Stalin No. 429	41°39'N	41°41'E	V	2,000	2,000 ^k /	480 ^k /			
Syzran	Stalin	53°05'N	48°23'E	VI	1,800	500 ^e /	430 ^e /			
Orsk		51°16'N	58°30'E	VIII	1,500	1,500 ^e / ^l /	300 ⁱ /	380 ^c / ¹ / ^m / ⁿ /	46 ^m / ⁿ / ^c /	
Krasnovodsk		40°01'N	52°58'E	Xb	1,500	1,020 ^e / ^p /	600 ^e / ^p /	375 ^q / ^m /		
Vannovskaya		40°25'N	71°31'E	Xb	1,500	750 ^r /	150 ^r /			
Krasnodar		45°00'N	38°58'E	IV	1,000	1,000 ^e / ^s /	300 ^s /			
Moskva	Lyubertsy	55°39'N	37°48'E	VII	1,000	820 ^e /	45 ^e /			
Drogobych		49°21'N	23°30'E	III	600	360 ^e /	250 ^e /			
Komsomol'sk	No. 409	50°37'N	137°03'E	XII	600	600 ^e /	385 ^e /	390 ^c / ^m / ⁿ / ^t /	44 ^m / ⁿ / ^c /	
Guryev	Lend Lease No. 1	47°05'N	51°56'E	Xa	560	560 ^e / ^t /	250 ^e /			
Khabarovsk	Ordzhonikidze No. 299	48°30'N	134°03'E	XII	550	550 ^e /	250 ^e /			
Ishimbay	Peregonny	53°28'N	56°02'E	VIII	500	480 ^e /	0 ^e /			
Kuybyshev		53°07'N	50°04'E	VI	460	460 ^e /	855 ^c /			

* Footnotes for Table 1 follow on p. 5.

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Table 1
Petroleum Refineries in the USSR
(continued)

Site	Name	Latitude	Longitude	Economic Region	Crude Charge Capacity		Thermal Conversion Capacity-1950	Catalytic Conversion Capacity-1950 ^{a/}		
					1953 ^{b/}	1950		Cracking	Alkylate	Polymer
Konstantinovskiy	Mendeleyev	57°49'N	39°36'E	VII	450	450 c/	200 c/			
Krasnokamsk		58°04'N	55°39'E	VIII	400	200 c/	N.A. c/			
Ukhta		63°34'N	53°42'E	Ib	250	250 c/	N.A. c/			
Kim		40°12'N	70°22'E	Xb	50	N.A. c/	N.A. c/			
Eyov		49°51'N	24°03'E	III	50	50 c/	N.A. c/			
Mukachevo	Del Karpati	48°26'N	22°42'E	III	30	30 c/	N.A. c/			
Tbilisi		41°43'N	44°49'E	V	20	20 c/	N.A. c/			
Chop		48°26'N	22°12'E	III	10	10 c/	N.A. c/			
Odessa		46°31'N	30°41'E	III	0	0 u/	250 c/ u/			
Kherson		46°38'N	32°37'E	III	0	N.A. v/	250 b/ v/			
Ufa No. 2		Not Determined		VIII	2,600	w/	w/			
Kuybyshev No. 2.		Not Determined		VI	2,600	w/	w/			
Total					51,530	38,910	13,670	1,645	90	90 g/

a. Available reports indicate no facilities except where capacities are listed.

b. The listed values include certain small adjustments of source ^{1/} values; corresponding capacity totals differ by about 1.3 percent. (Footnote references in arabic numerals are to sources listed in the Appendix.

c. ^{2/}.

d. ^{3/}.

e. Estimated as probably available in 1953.

f. ^{4/}.

g. Combined as charge to catalytic hydrogenation facilities at Ufa, providing for iso-octane production capacity of 80,000 tons.

h. ^{5/}.

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Table 1
Petroleum Refineries in the USSR
(Continued)

	Thousand Metric Tons
i. 6/.	
j. 7/.	
k. 8/.	
l. 9/.	
m. 10/.	
n. 11/.	
o. 12/.	
p. 13/.	
q. 14/.	
v. 15/.	
s. 16/.	
t. 17/.	
u. 18/.	
v. 19/.	
w. New installations relative to 1950.	

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Table 2

Major Synthetic and Shale Oil Facilities in the USSR

								Thousand Metric Tons
Site	Name	Coordinates		Economic Region	1953 Estimate		Process Used	Remarks
		Latitude	Longitude		Petroleum Product Capacity			
Kitoy 20/	Krasnoye	52°35'N	103°56'E	XI	0		Bergius Hydrogenation	Still under construction; will probably begin some production in 1954.
Cheremkhovo 21/		53°07'N	103°09'E	XI	20		Low-Temperature Carbonization	
Kemerovo 22/		55°21'N	86°00'E	IX	Unknown		Possible Bergius Hydrogenation	Doubtful existence
Novocherkassk 23/		47°29'N	40°06'E	IV	Unknown		Possible Fischer-Tropsch	May be in operation in 1954.
Leninsk-Kuznetskiy 24/		54°38'N	86°10'E	IX	10		Low-Temperature Carbonization	
Gornozavodsk 25/	Naihor	46°33'N	141°51'E	XII	10		Low-Temperature Carbonization	
Uglezavodsk 26/	Naibuchi	47°19'N	142°37'E	XII	10		Low-Temperature Carbonization	
Kivioli 27/		59°22'N	26°57'E	IIa	180		Shale Oil Processing	
Kohtla-Jarve 28/		59°24'N	27°14'E	IIa	150		Shale Oil Processing	
Ahtme 29/		59°18'N	27°27'E	IIa	140		Shale Oil Processing	
Kohtla 30/		59°20'N	27°23'E	IIa	10		Shale Oil Processing	
Slantsy 31/		52°11'N	43°35'E	Ia	50		Shale Oil Processing	
Syzran 32/	Kasperovka	53°02'N	48°26'E	VI	Unknown		Shale Oil Processing	
Total					580			

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Table 3

Petroleum Refineries in the Satellite Countries

						Thousand Metric Tons
Country and Site	Name	Coordinates		1953 Estimate		Remarks
		Latitude	Longitude	Crude Charge Capacity	Thermal Conversion Capacity	
<u>Albania</u>						
Cerrik 33/		41°02'N	19°57'E	0	N.A.	Under construction; to be completed by 1 Jan 1955 with a crude charge capacity of 150,000 tons per year. Also asphalt plant here. Small topping plant for field operations.
Kucove 34/	Stalin	40°48'N	19°54'E	40	0	
Berat 35/		40°42'N	19°56'E	Negligible	0	
Subtotal				40		
<u>Austria</u> (Soviet Zone)						
Schwechat 36/		48°08'N	16°28'E	560	160 - cracking	125 - cracking
Moosbierbaum 37/		48°19'13"N	15°55'E	250		
Lobau 38/		48°10'N	16°30'E	250		
Korneuburg 39/		48°20'15"N	16°20'15"E	250		
Kagran 40/		48°15'N	16°25'E	180		
Floridsdorf 41/		48°16'N	16°24'E	180		
Voesendorf 42/		48°07'N	16°15'E	100		
Subtotal				1,770		

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Table 3

Petroleum Refineries in the Satellite Countries
(Continued)

						Thousand Metric Tons
				1953 Estimate		
Country and Site	Name	Coordinates		Crude Charge Capacity	Thermal Conversion Capacity	Remarks
		Latitude	Longitude			
<u>Bulgaria</u>						
Ruse <u>43/</u>		43°50'N	25°57'E	25	0	Of negligible significance.
Verila <u>44/</u>		42°37'N	23°35'E	N.A.	0	Specialty lubricant and grease plant with a capacity of about 5,000 tons per year.
Subtotal				<u>25</u>		
<u>Czechoslovakia</u>						
Dubova <u>45/</u>		48°49'N	19°26'E	80	0	55 - cracking
Bratislava <u>46/</u>		48°09'N	17°07'E	120		
Pardubice <u>47/</u>		50°02'N	15°47'E	125	0	
Kolin <u>48/</u>		50°02'N	15°12'E	90	0	
Moravska-Ostrava <u>49/</u>		49°50'N	18°17'E	60	0	
Subtotal				<u>475</u>		

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Table 3
 Petroleum Refineries in the Satellite Countries
 (Continued)

						Thousand Metric Tons
Country and Site	Name	Coordinates		1953 Estimate		Remarks
		Latitude	Longitude	Crude Charge Capacity	Thermal Conversion Capacity	
<u>Hungary</u>						
Szóny 50/	Molaj	47°44'N	18°10'E	350	0	
Almasfűzito 51/		47°43'N	18°15'E	200	0	
Csepel 52/		47°25'N	19°05'E	200	0	
Petfűrdő 53/	Peti	47°09'N	18°07'E	180	45 - cracking	
Nyírbogdány 54/		48°03'N	21°52'E	100	0	
Szeged 55/	Szoreg	46°15'N	20°09'E	60	0	
Subtotal				1,090		
<u>Poland</u>						
Trzebinia 56/	Czechowice	50°10'N	19°29'E	200	0	
Dziedzice 57/		49°55'N	19°01'E	150	0	
Gorlice 58/	Glinik Mariampolski	49°40'N	21°10'E	100	15 - cracking	
Jasło 59/		49°45'N	21°28'E	50	0	
Jedlicze 60/		49°43'N	21°39'E	50	0	
Limanowa Sowliny 61/		49°42'N	20°26'E	Unknown	0	Apparently operating; rather small.
Subtotal				550		

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Table 3
 Petroleum Refineries in the Satellite Countries
 (Continued)

Thousand Metric Tons						
Country and Site	Name	Coordinates		1953 Estimate		Remarks
		Latitude	Longitude	Crude Charge Capacity	Thermal Conversion Capacity	
<u>Rumania</u>						
Ploesti <u>62/</u>	Sovrompetrol No. 1 Astro-Romano Orion	44°55'N	26°01'E	2,200	750 - cracking and reforming	
Ploesti <u>63/</u>	Sovrompetrol No. 2 Concordia Vega	44°57'N	26°00'E	1,000	225 - cracking	
Teleajen <u>64/</u>	Sovrompetrol No. 3 Romano Americano	44°56'N	26°05'E	1,000	250 - cracking	
Campina <u>65/</u>	Sovrompetrol No. 4 Steaua Romano	45°07'N	25°44'E	900	300 - cracking and reforming	
Ploesti <u>66/</u>	Sovrompetrol No. 5 Standard	44°55'N	26°02'E	700	160 - cracking	
Brazi <u>67/</u>	Sovrompetrol No. 6 Creditul Minier	44°53'N	26°01'E	300	125 - cracking	
Ploesti <u>68/</u>	Sovrompetrol No. 7 Columbia Aquila	44°55'N	26°00'E	500	250 - cracking	
Moinesti <u>69/</u>	Sovrompetrol No. 8 Steaua Romano	46°28'N	28°29'E	250	Unknown	

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Table 3
 Petroleum Refineries in the Satellite Countries
 (Continued)

						Thousand Metric Tons
Country and Site	Name	Coordinates		1953 Estimate		Remarks
		Latitude	Longitude	Crude Charge Capacity	Thermal Conversion Capacity	
<u>Rumania</u>						
(Continued)						
Brasov 70/	Sovrompetrol No. 9 Vacuum Oil	45°40'N	25°36'E	N.A.	0	Special lubricating oil plant with a capacity of about 25,000 tons per year.
Darmanesti 71/	Moldava No. 2	46°28'N	26°29'E	500	Unknown	
Ploesti 72/	Xenia	44°54'N	26°01'E	225	0	
Doicești 73/		44°59'N	25°24'E	100	0	
Subtotal				7,675		
<u>East Germany</u>						
Lützkendorf 74/		51°18'N	11°51'E	135	0	Lubricating oil production emphasized here.
Herrenleite 75/		50°58'N	13°59'E	20	0	Lubricating oil production emphasized here.
Klaffenbach 76/		50°46'N	12°40'E	15	0	
Subtotal				170		

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Table 3
Petroleum Refineries in the Satellite Countries
(Continued)

						Thousand Metric Tons
Country and Site	Name	Coordinates		1953 Estimate		Remarks
		Latitude	Longitude	Crude Charge Capacity	Thermal Conversion Capacity	
<u>China</u>						
Yumen 77/	Laochunmiao	39°42'N	97°50'E	250	50 - cracking	
Wu-su 78/		28°32'N	110°16'E	30	0	
Ta-lien 79/	Dairen No. 7	38°55'N	121°39'E	150	N.A.	
Chin-hsi 80/	No. 5	40°54'N	120°36'E	150	0	
Ssu-p'ing 81/	No. 4	43°10'N	124°20'E	100	0	
Shanghai 82/		31°14'N	121°28'E	Unknown	0	
Subtotal				680		
<u>North Korea</u>						
Wonsan 83/		39°09'N	127°27'E	Unknown	0	Believed to have been destroyed by UN bombing in 1950.
Satellite Total				12,475		

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Table 4
Synthetic and Shale Oil Facilities in the Satellites

						Thousand Metric Tons
Country and Site	Name	Coordinates		1953 Estimate	Process Used	Remarks
		Latitude	Longitude	Petroleum Product Capacity		
<u>East Germany</u>						
Böhlen 84/		51°11'N	12°23'E	350	Bergius Hydrogenation	Includes solvent production
Schwarzheide 85/		51°28'N	13°52'E	200	Fischer-Tropsch Synthesis	
Leuna 86/		51°19'N	12°00'E	350	Bergius Hydrogenation	
Zeitz/Troglitz 87/		51°04'N	12°12'E	400	Bergius Hydrogenation	
Rositz 88/		51°01'N	12°21'E	150	Tar Distillation	
Görlau 89/		51°40'N	12°05'E	55	Tar Distillation	
Webau 90/		51°11'N	12°05'E	40	Tar Distillation	
Köpsen 91/		51°10'N	12°04'E	70	Tar Distillation	
Schkopau 92/		51°24'N	11°59'E	15	Synthetic Lubricating Oil Production	Produces poly-ethylene type synthetic lubricating oils
Subtotal				1,630		
<u>Czechoslovakia</u>						
Most 93/		50°32'N	13°39'E	375	Bergius Hydrogenation	
<u>Poland</u>						
Dwory 94/	Oswiecim	50°02'N	19°15'E	50	Bergius Hydrogenation and Fischer-Tropsch	Still under construction
Kedzierzyn 95/	Heydebreck	50°21'N	18°12'E	10	Bergius Hydrogenation	
Odertal 96/		50°25'N	18°07'E	Unknown	Bergius Hydrogenation	
Subtotal				60		

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Table 4
Synthetic and Shale Oil Facilities in the Satellites
(Continued)

						Thousand Metric Tons
Country and Site	Name	Coordinates		1953 Estimate	Process Used	Remarks
		Latitude	Longitude	Petroleum Product Capacity		
<u>China</u>						
Fu-shun <u>97/</u> <u>98/</u> <u>99/</u>	West No. 1	41°51'N	123°52'E	150	Shale Oil Processing	a/
	West No. 2	41°52'N	123°53'E	230	Shale Oil Processing	Undergoing reconstruction
	Synthetic No. 3	41°53'N	123°54'E	Unknown	Bergius Hydrogenation	Probably inoperative
		41°07'N	121°06'E	15	Fischer-Tropsch Synthesis	
Chin-chou <u>100/</u> Ta-lien <u>101/</u>	Dairen	38°55'N	121°39'E	60	Shale Oil Processing	
Subtotal				<u>455</u>		
<u>North Korea</u>						
Aoji <u>102/</u> Samhyang <u>103/</u>		42°33'N	130°31'E	Small	Bergius Hydrogenation	Status Unknown
		41°15'N	129°30'E	Unknown	Low-Temperature Carbonization	Probably inactive
Satellite Total				<u>2,520</u>		
a. The shale processing facilities at Fu-shun can be used for processing crude oil.						

a. The shale processing facilities at Fu-shun can be used for processing crude oil.

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APPENDIX

SOURCES

Evaluations, following the classification entry and designated "Eval.," have the following significance:

<u>Source of Information</u>	<u>Information</u>
Doc. - Documentary	1 - Confirmed by other sources
A - Completely reliable	2 - Probably true
B - Usually reliable	3 - Possibly true
C - Fairly reliable	4 - Doubtful
D - Not usually reliable	5 - Probably false
E - Not reliable	6 - Cannot be judged
F - Cannot be judged	

"Documentary" refers to original documents of foreign governments and organizations; copies or translations of such documents by a staff officer; or information extracted from such documents by a staff officer, all of which may carry the field evaluation "Documentary."

Evaluations not otherwise designated are those appearing on the cited document; those designated "RR" are by the author of this report. No "RR" evaluation is given when the author agrees with the evaluation on the cited document.

25X1A2g

1. [REDACTED]
2. NIS 26, USSR, Supplement 5, Petroleum, Oct 1952, published 1954. S. Eval. RR 3.
3. Air, 0325-0070 TIS, 21 Oct 1952. S. Eval. RR 3.
4. 25X1A2g 0235-0001 TIS, 19 Mar 1952. S. Eval. RR 3.
5. [REDACTED]
6. Air, 0235-0001 TIS, 10 Feb 1951. S. Eval. RR 3.
7. Air, 0249-0001 TIS, 21 Feb 1951. S. Eval. RR 3.
8. Air, 0324-0092 TIS, 6 Dec 1950. S. Eval. RR 3.

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9. Air, 0236-0001 TIS, 21 Feb 1951. S. Eval. RR 3.
- Air, 0236-0015 TIS, 29 Nov 1950. S. Eval. RR 3.
10. Badger Design Data for USSR Lend-Lease Refineries with Houdry Catalytic Cracking and Catalytic Alkylation Systems, 25X1A2g and Operating Data Book, 41 Volumes, National Archives Files. S. Eval. RR 1.

11. [REDACTED]

12. [REDACTED]

25X1A2g

13. Air, 0326-0003 TIS, 20 Jan 1951. S. Eval. RR 3.
14. [REDACTED]

25X1A2g

15. Air, 0328-0021 TIS, 18 Aug 1950. S. Eval. RR 3.
16. Air, 0249-0041 TIS, 2 Feb 1951. S. Eval. RR 3.
17. Air, 0247-0001 TIS, 3 Nov 1952. S. Eval. RR 3.
- Air, 0247-0016 TIS, 28 Feb 1952. S. Eval. RR 3.
18. Air, 0250-0062 TIS, 13 Dec 1950. S. Eval. RR 3.
19. Air, 0250-0023 TIS, 18 Apr 1950. S. Eval. RR 3.
20. Air, AIS 3-3, 29 Jan 1954. S. Eval. RR B-2.

25X1A2g

21. Ibid.

22. Ibid.

23. Ibid.

24. Ibid.

25. Ibid.

26. 25X1A2g

27. [REDACTED]

28. Ibid.

29. Ibid.

30. Ibid.

31. 25X1A2g

32. [REDACTED]

33. [REDACTED]

34. [REDACTED]

35. [REDACTED]

36. [REDACTED]

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S-E-C-R-E-T

25X1A2g

37.
38.
39.
40.
41.
42.
43.
44.

45. Air, 0232-0188 TIS, 24 Dec 1952. S. Eval. RR 3.
46. Air, 0232-0186 TIS, 16 Jul 1953. S. Eval. RR 3.
47. Air, 0231-0233 TIS, 8 Apr 1953. S. Eval. RR 3.
48. Air, 0231-0229 TIS, 5 May 1953. S. Eval. RR 3.

25X1A2g

49. [REDACTED]
50. Ibid.
51. Ibid.
52. Ibid.
53. Air, 0252-0145 TIS, 2 Jan 1953. S. Eval. RR 3.
54. Air, 0232-0247 TIS, 20 Jan 1951. S. Eval. RR 3.

25X1A2g

25X1A2g 55. Air, 0251-0396 TIS, 29 Jul 1953. S. Eval. RR 3.

56. [REDACTED]
57. Ibid.
58. Air, 0232-0004 TIS, 4 Jun 1953. S. Eval. RR 3.

25X1A2g

59. Air, AFOIN Phase I List, op. cit.
60. Ibid.

61. [REDACTED]
62. CIA contribution to State Department Instruction No. 18,
25X1A2g 1953. S. Eval. RR 3.

63. [REDACTED]
64. Ibid.
65. CIA contribution to State Department Instruction No. 18,
25X1A2g op. cit.

25X1A2g

66. [REDACTED]
67. Ibid.
68. Ibid.

S-E-C-R-E-T

S-E-C-R-E-T

69. Ibid.
70. Ibid.
71. Ibid.
72. Ibid.
73. Ibid.
74. CIA RR/M/P Unpublished Project 25.4.2, Oct 1953. S.
75. Ibid.
76. 25X1X7 Ibid.
77. [REDACTED]
78. [REDACTED]
Army, G-2, Weekly Intelligence Report No. 138, 12 Oct 1951.
S. Eval. RR 2.
79. 25X1X7-8
80. [REDACTED]
81. Ibid.
25X1A8a0010001-8 E.W. Pauley, Report on Japanese Assets in Manchuria, Jul 1946.
U. Eval. RR 2.
82. [REDACTED]
83. Air, Fifth Air Force Weekly Intelligence Summary No. 28,
2 Apr 1954. S.
84. CIA RR/M/P Unpublished Project 25.4.2, op. cit.
85. 25X1A2g
86. [REDACTED]
87. [REDACTED]
88. [REDACTED]
89. [REDACTED]
90. [REDACTED]
91. [REDACTED]
92. CIA RR/M/P Unpublished Project 25.4.2, op. cit.
93. 25X1A2g
94. [REDACTED]
25X1A2g 95. CIA RR/M/P Unpublished Project 25.4.2, op. cit. 25X1A2g
96. [REDACTED]
97. [REDACTED]
25X1X7 98. Ibid.
99. [REDACTED]
100. Ibid.
25X1X7 Pauley, op. cit.
101. [REDACTED]
102. Air, Fifth Air Force Weekly Intelligence Summary No. 28, op. cit.
103. Ibid.

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S-E-C-R-E-T

S-E-C-R-E-T

S-E-C-R-E-T